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TITLE OF THE INVENTION

Improved Pry Bar With Rubber Pivot

CROSS-REFERENCE TO RELATED PATENT APPLICATION

This application claims priority to Provisional Patent Application, Serial No.
10 60/461,200, filed April 9, 2003.

BACKGROUND OF INVENTION

1. Field Of The Invention – This invention relates to an article of manufacture. More specifically, this invention is directed to a tool suitable for use in
15 Locksmithing. This tool is designed for gaining limited access to the interior of a vehicle by prying a vehicle door away from a door jamb, so as to permit manipulation of the vehicle's door lock or lock button, or door, handle with another tool (e.g. long rod) from within the vehicle.

2. Background of the Invention – In the field of Locksmithing, it is not
20 uncommon to be called upon to unlock a vehicle door. Typically, such operation requires insertion of a so-called "slim jim" into the inner door cavity to manipulate the door lock linkage from within this cavity. This option has become increasingly unavailable because of protective measure made during vehicle manufacture to prevent unauthorized access to the locking mechanism from within the door's cavity.

25 Alternatively, access to the vehicle locking mechanism can be accomplished by some minimal displacement of the vehicle window (hard top model doors) or a vehicle

5 door (sedan model doors) to allow for insertion of another tool into the vehicle to
manipulate the door handle or vehicle locking mechanism from within the car. Such
displacement of the vehicle window/door is generally accomplished by prying the
vehicle's door or window out and away from the door jamb or frame (as the case may
be), thereby creating working room sufficient to insert a long rod into the vehicle to
10 manipulate the interior door lock button, lever, or handle.

As vehicle manufacturers have become increasingly aware of the potential for
unauthorized vehicle access, the tolerances between the vehicle door/window and door
jamb have been reduced, making it increasingly more difficult to gain access to the car
interior by prying the door/window away from the door jamb. In those legitimate
15 instances where access must be gained without aid of the vehicle door key, some
unwarranted of damage is sustained in the process of prying the window away from the
door frame – either as a result of the pry bar action upon the window, or upon the door
jamb. The damage to the door jamb typically involves scratching or chipping of the
paint and possible minor gouges and dents to the jamb itself. Notwithstanding, these
20 limitations and known consequences of unlocking a vehicle door with the aid of a pry
bar, the pry bar approach is and remains the preferred, and in a number of instances, the
only technique available to the Locksmith to open a locked vehicle door without a key.

OBJECTS OF INVENTION

25 It is the object to remedy the above as well as related deficiencies in the prior art.
More specifically, it is the principle object of this invention to provide an

- 5 improved pry bar having a pivot or fulcrum designed to cushion the pry bar pressure upon the door jamb while unlocking an automobile door.

It is another object of this invention to provide an improved pry bar having a resilient elastomeric pivot or fulcrum that can be releasably affixed to a pry bar by mechanical means.

- 10 It is yet another object of this invention to provide an improved pry bar having a resilient elastomeric pivot or fulcrum that allows the insertion of a long narrow tool into the interior of the vehicle so as to permit the manipulation of the door lock button, door, lock lever, or door lock handle of a vehicle without the need to insert a wedge or other expedient between the door and the door jamb.

- 15 Additional objects of this invention include a method for the opening of a locked vehicle door with the improved pry bar of this invention.

SUMMARY OF INVENTION

- The above and related objects are achieved by providing a pry bar having a rigid
20 shaft having a tapered tip, or reduced thickness, on one end thereof. This tapered tip includes a concave depression on the top-side of the pry bar, for insertion into the gap between the door and door frame. In the preferred embodiments of this invention, the pry bar of this invention includes a resilient pivot or fulcrum located on the underside of the rigid shaft proximate to the tapered tip. In one of the preferred embodiments of this
25 invention, the resilient pivot or fulcrum is mechanically attached to the rigid shaft of the pry bar, thereby permitting its removal and replacement.

5 In use, the tapered tip of the pry bar is inserted into the gap between the door and door jamb, and pressure exerted upon the free end of pry bar end to displace the door frame relative to the door jamb. The length of the pry bar is a matter of choice depending upon the amount of physical force that need be applied to the pry bar to displace the door relative to the door frame. Thus, as the length of the pry bar is
10 increased, the degree of leverage attained is increased, and the physical force that is needed to be exerted by the Locksmith is consequently reduced. In the preferred embodiments of this invention, the overall length of the pry bar is in the range of from about 12 to 24 inches. Typically, the door can be displaced and held at a distance from the door frame with one hand, while the Locksmith inserts a tool into the vehicle's
15 interior. Alternatively, a wedge or comparable spacer can be inserted into the gap between door frame and the door jamb to maintain the gap between them. A long narrow tool can then be inserted through this gap into the interior of the vehicle, and the door locking mechanism manipulated from within the car, thereby unlocking the door.

 In another of the preferred embodiments of this invention, the improved prior bar
20 of this invention can be used to open a locked door of a vehicle by inserting the pry bar between the window glass and the door frame of door of the vehicle (hard top model). Essentially the same procedure is followed as described above relative to gaining access to the interior of the sedan model vehicle.

25 **BRIEF DESCRIPTION OF DRAWINGS**

 Fig. 1 illustrates a perspective view of a preferred embodiment of a pry bar of this

5 invention.

Fig. 2 illustrates a perspective view of the preferred pry bar of this invention inserted into a door jamb of a sedan style motor vehicle.

Fig. 3 illustrates an enlarged view of the door jamb of Fig. 2.

Fig. 4 is an enlarged view, in isolation, of the resilient pivot or fulcrum of the
10 prior bar of Fig. 1.

DETAILED DESCRIPTION OF INVENTION INCLUDING PREFERRED EMBODIMENTS

15 The preferred embodiments of this invention are described hereinafter in reference to the foregoing drawings. For ease of expression and comprehension, elements and components of each of these drawings, which depict common elements, are assigned the same reference numeral.

Fig. 1 shows the one of the preferred embodiment of the improved pry bar (10) of
20 this invention. The pry bar (10) depicted in Fig. 1 includes a rigid shaft (12) having a tapered tip (14), or a discrete area of reduced thickness on one end thereof. This tapered tip (14) includes a concave depression (16) on the top-side (18) of the pry bar, for insertion into the gap (Fig. 2, 20) between the door (Fig. 2, 22) and door frame (Fig. 2, 24). This pry bar (10) further includes a fulcrum or pivot (26) located on the underside
25 (28) of the pry bar. In the embodiment of the invention depicted in Fig. 1, the fulcrum or pivot (26) is positioned proximate to the tapered tip (14) to achieve maximum mechanical leverage for prying the door (Fig. 2, 22) away from the door frame (Fig. 2, 24).

5 Fig. 2 illustrates one of techniques for use of the pry bar (10) of this invention. The pry bar (10) is depicted as inserted into the gap (20) between the door (22) and the door frame (24). The tapered tip (14) is inserted between the door weather stripping (25) and the door frame (24) and manual pressure/force thereupon applied to the opposite end of the pry bar. In the embodiment of this invention illustrated in Fig. 2, the pry bar can
10 be manipulated with one hand, to create a gap (Fig. 3, 30) between the door (22) and the door frame (24). Thus, the Locksmith is free, with his other hand, to insert a lock mechanism manipulative tool through this gap (Fig. 3, 28) into the interior of the locked vehicle.

 Fig. 3 illustrates the unique operation of the pry bar relative to the door and frame
15 within the environment of contemplated use. More specifically, the pressure exerted upon the pry bar effectively displaces the door relative to the door frame without damage to the either the frame or to the door. In Fig. 3, the brunt of the pressure exerted upon door frame (24) is absorbed by the pivot or fulcrum (26) which cushions the force on the frame, and further prevents any abrasion of the frame.

20 Fig. 4 illustrates in detail the physical parameters of a replaceable pivot or fulcrum contemplated for use in the improved pry bar of this invention. This replaceable pivot or cushion is composed of a durable natural or synthetic elastomeric compound have a durometer hardness sufficient to both support the lever action of the pry bar and yet be resilient enough to deform/flex under the contemplated loads that are applied to it
25 during use. In one of the preferred embodiments of this invention, the pivot/fulcrum is composed a synthetic rubber compound (e.g. EPDM rubber compound) having a

5 durometer hardness of approximately 80, and otherwise sufficiently mechanically durable enough to withstand the abuse of the commonly encountered by a Locksmith tool kit. The pivot/fulcrum is attached to the underside (28) of the rigid bar (12) with mechanical fasteners (31) . More specifically, threaded inserts (32) embedded into the rubber compound which permits a companion fastener (31) to mechanically couple the pivot to
10 the underside of the rigid bar.

It is to be understood, however, that the present invention may be embodied in various forms. Therefore, preferred embodiments disclosed herein are not to be interpreted as limiting, but rather as a basis for the claims and as a representative basis for teaching one skilled in the art to employ the present invention in virtually any
15 appropriately detailed system, structure or manner.

Accordingly, the foregoing description of the preferred embodiments is not intended to limit the scope of the invention to the particular form set forth, but on the contrary, it is intended to cover such alternatives, modifications, and equivalents as may be included within the spirit and scope of the invention as defined by the appended
20 claims.